



General information	
Academic subject	MEDICAL APPLIED BIOCHEMISTRY
Degree course	Pharmacy
ECTS credits	6
Compulsory attendance	yes
Language	Italian
Academic year	2020-21

Subject teacher		
Course A-E	Name Surname	Role
	PAOLA ANNA MARIA LOGUERCIO POLOSA	Associate Professor
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Course F-N	Name Surname	Role
	MARIA ANTONIETTA DI NOIA	Assistant Professor
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Course O-Z	Name Surname	Role
	ANTONELLA CORMIO	Assistant Professor
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ECTS credits details	Area	SSD	CFU/ETCS
Basic teaching activities	05	BIO/10	6

Class schedule	
Period	2 nd semester
Year	3 rd
Type of class	Oral lessons

Time management	
Hours	150
In-class study hours	60
Out-of-class study hours	90

Academic calendar	
Class begins	February 2021
Class ends	June 2021

Syllabus	
Prerequisites/requirements	
Expected learning outcomes	<ul style="list-style-type: none">• <i>Knowledge and understanding on:</i><ul style="list-style-type: none">○ basic principles underlying the metabolism of some tissues and organs in physio-pathological conditions○ metabolic interrelationships among various tissues and organs○ biochemistry and biomolecular techniques, with applications to clinical biochemistry



	<ul style="list-style-type: none">• <i>Applying knowledge and understanding on:</i><ul style="list-style-type: none">○ application of a broad spectrum of biochemical methodologies for the evaluation of metabolic alterations○ application of methodologies aimed at the production of biopharmaceuticals• <i>Making informed judgments and choices:</i><ul style="list-style-type: none">○ acquisition of autonomy concerning the evaluation and interpretation of experimental and clinical data in relation to metabolic dysfunctions• <i>Communicating knowledge and understanding:</i><ul style="list-style-type: none">○ acquisition of the most appropriate lexicon and terminology in order to be able to understand and communicate clearly the contents of the discipline• <i>Capacities to continue learning:</i><ul style="list-style-type: none">○ acquisition of skills that favor the development, deepening and constant updating of knowledge inherent to the discipline, with particular reference to the consultation of bibliographic material, databases and other online contents.
Contents	<p>Metabolic interrelationships. Fasting feeding cycle. Hormonal control. Insulin and Glucagon: biosynthesis, secretion, signal transduction, metabolic effects. Counter-regulatory hormones: catecholamines. Thyroid hormones: biosynthesis and metabolic effects. Glycemia. Hypoglycemia. Type 1 diabetes. Type 2 diabetes: pathogenesis, metabolic effects. Diagnosis and drug therapy of diabetes. Chetonic bodies. Glycogenesis.</p> <p>Organ biochemistry. Hepatic metabolism: Heme catabolism. Jaundice. Liver detoxification. Cytochrome P450. Conjugation reactions. Liver toxicity of drugs. ROS. NO. RNOS. Respiratory burst. Antioxidant defences. Liver function test.</p> <p>Nitrogen metabolism. Muscle tissue metabolism. Biochemical markers of myocardial infarction.</p> <p>Blood and blood cells. Hematopoiesis. Complete blood count. Blood proteins. Hemoglobinopathies: Thalassemia.</p> <p>Biochemical methodologies, elements of clinical biochemistry and self-analysis tests. Restriction enzymes. Molecular cloning. Vectors. Plasmids. PCR and its applications. LAC Operon. Constitutive and inducible expression systems. Expression and purification of recombinant proteins. Recombinant drugs. Production of recombinant insulins. Monoclonal antibodies. Chimeric and humanized antibodies. Vaccines.</p>
Course program	
Bibliography	<ul style="list-style-type: none">• Biochimica per le discipline biomediche. Authors: Baynes John W., Dominiczack Marek H. – Ed. Elsevier• Biochimica medica, strutturale, metabolica e funzionale. Authors: Siliprandi, Tettamanti - Ed. Piccin• Biochimica applicata. Authors: Stoppini, Bellotti - Ed. Edises
Notes	<p>Students should integrate their study with lecture notes and biochemistry textbooks.</p> <p>PowerPoint slides projected during the lessons are available.</p>



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Teaching methods	Lectures with the use of PowerPoint, networking and writing on the board
Assessment methods	Oral interview. The use of writing is also required where appropriate.
Evaluation criteria	The critical acquisition of the contents of the lessons, the ability to integrate the gained knowledge with that of related disciplines, as well as the clarity of the presentation are evaluated. Particular importance is given to the student's ability not to stop at the notion but to grasp the meaning of the disciplinary contents so that the study becomes an opportunity to increase the knowledge and culture of the academic subject.
Further information	